Novacel innovative and eco-responsible products : OXYGEN

02/2023

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– Novacel's teams are committed to preserve everything that holds value by creating a responsible industrial community and doing our best in all our operations while respecting the planet

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With this objective, Novacel works on 3 major axis

Creating a responsible industrial community

By working with **partners** to find solutions together.

By improving **quality at work**, fostering a culture of **safety** and **quality** and developing a deep sense of **ethics**.

Minimizing our environmental impact

By **reducing our carbon impact** in production by using low carbon equipment, developing renewable energies and improving our waste management.

Eco-designing our products

By **reducing the environmental impact** of our products, innovating all along of their conception until their end of life and still **taking care** of our teams' and customers' **health**.

OXYGEN range is part of this pillar

Novacel protective solutions reduce product waste and allow you to improve your CO_2 impact by 2% to 5% !

Global carbon footprint reduction by using process and protective films :

Surfaces	Carbon footprint emission (kg CO_2 eq/m²)	Using a film reduces carbon footprint impact* (kg CO_2 eq saved /m²)	Source may-22
Stainless Steel Sink	64,7	-3,2	Source INIES
Sandwich Panel PUR/PIR [30-80mm]	39,9	-2,0	Source INIES (ArcelorMittal)
Aluminum Composite Panel (ACP)	37,8	-1,9	Source INIES (3A composite - Prefa)
PMMA sheet [10mm]	168	-8,4	Source INIES
PVC profiles double glazed windows and doors	71,5	-3,6	Source INIES
Carpet [100% PA, <750g/m²]	13,3	-0,7	Source INIES (Balsan)
Acid etching Glass	14,9	-0,7	Source INIES (AGC Matelux)
HPL on wood panel	11,6	-0,6	Source INIES (Polyrey)

*-5% of waste estimated

Novacel films carbon impact are between 0,05 and 0,35 kg CO_2 eq/m²

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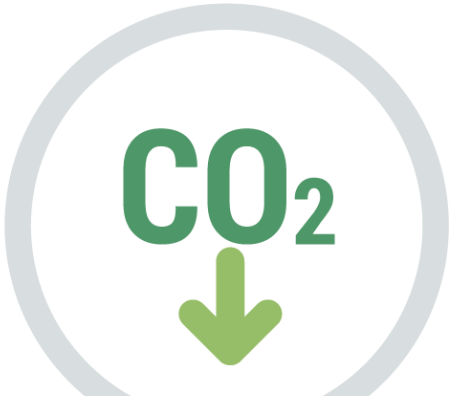
Source : INIES | Les données environnementales et sanitaires de référence pour le bâtiment (base-inies.fr)

With the OXYGEN range, Novacel takes another step towards protecting the planet and reaches 3 objectives

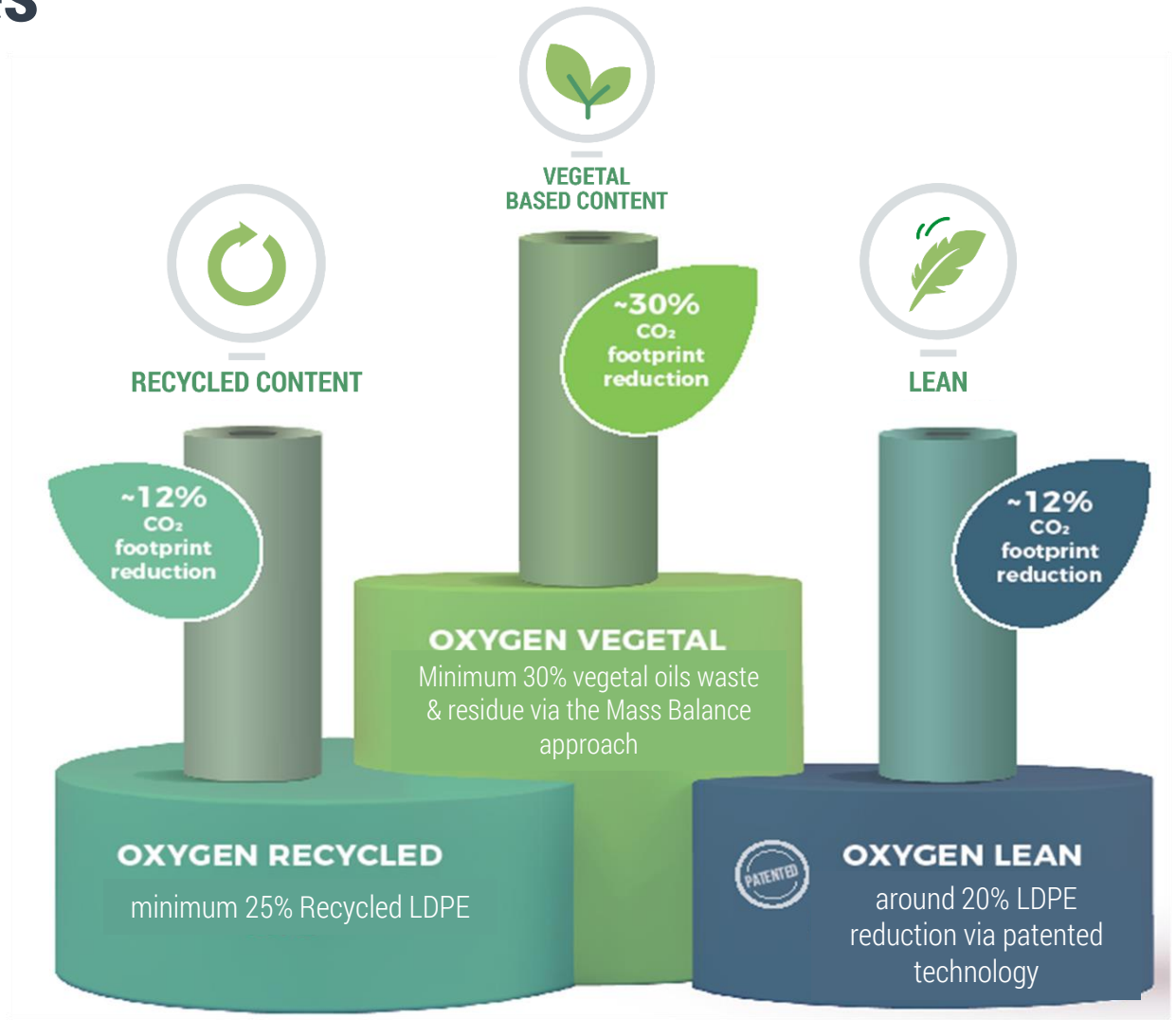
– FOSSIL RESSOURCES



– CO_2 EMISSION

+ RECYCLING

The OXYGEN range is made out of 3 complementary technologies with dedicated features



All Oxygen grades are recyclable !

Extra: Own trademark aspect like recycled paper (grains/gels) | Premium solution | Easy to handle : ↘ rolls' weight

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How does the OXYGEN range really impact my carbon footprint?

STANDARD GRADE	OXYGEN GRADE
4152	3120 *(-0.011 kg CO2 eq/m²)*

For 100,000 m² annual consumption = **1.1 tons CO_2 eq** saved, i.e.:

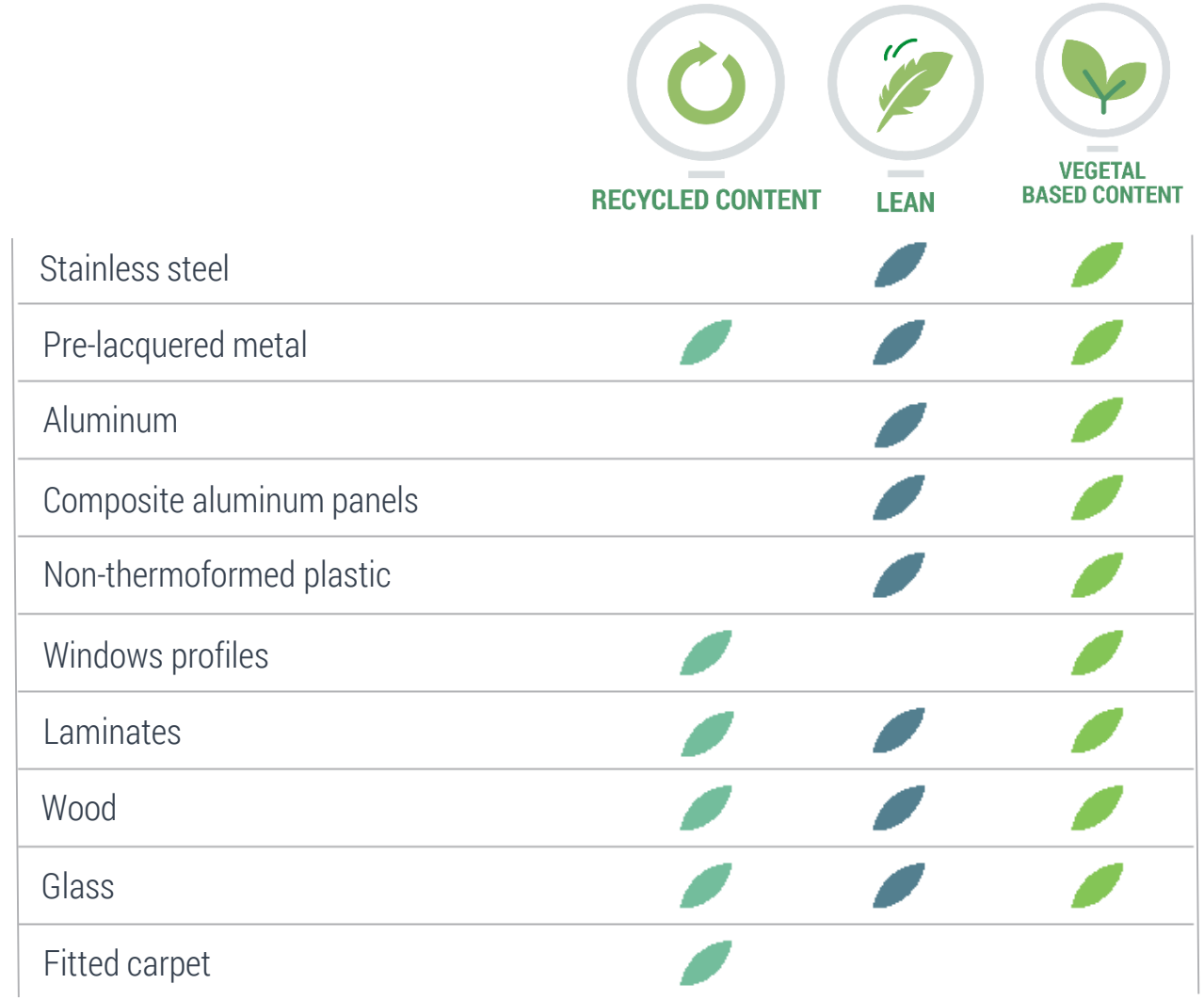
5,000 km
by car

8 million liters of
tap water

35 smartphones
manufactured

Source : Impact sur le climat des objets et gestes | Impact CO2 (02-2023)

Novacel offers an OXYGEN solution for every need !



	RECYCLED CONTENT	LEAN	VEGETAL BASED CONTENT
Stainless steel		✓	✓
Pre-lacquered metal	✓	✓	✓
Aluminum		✓	✓
Composite aluminum panels		✓	✓
Non-thermoformed plastic		✓	✓
Windows profiles	✓		✓
Laminates	✓	✓	✓
Wood	✓	✓	✓
Glass	✓	✓	✓
Fitted carpet	✓		

The OXYGEN range is made of 9 grades opened and will further grow

Markets	Standard grade	Oxygen grade	Technology	Status
Multipurpose	4233	3000	Vegetal	Open
	4233	3230	Lean	Open
Stainless Steel	4228REF	3030GAB	Vegetal	Open
	4228REF	3200GAB	Lean	Open
Precoated*	4154	3100	Recycled	Open
	Close to 4152	4186	Recycled	Open
	4152	3120	Recycled	Open
	9371	3133	Recycled	1st homologation
	4333	3144	Recycled	1st homologation
Precoted* & Profiles	9373	3143	Recycled	Open
Laminates	4381	3130	Recycled	1st homologation
Carpet	9358	3121	Recycled	Open
Glass	9561	3110	Recycled	1st homologation

* not recommended for appliances

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A unique ecological offer

Our new Oxygen range is unique because it offers a number of solutions to cover **100% of the market's needs**.

This range aims at **achieving growth with the help of our customers**.

Novacel's OXYGEN brand embodies a promise to:

- reduce fossil raw materials as far as possible in order to save these non-renewable resources
- use as many renewable resources as possible for a more favorable carbon balance
- reduce carbon emissions
- be 100% recyclable
- be more focused on human well-being

A range of 3 innovative film technologies

All of which all provide answers to our customers' multiple needs:

OXYGEN Recycled: a minimum of 25% of recycled Low Density Polyethylene in the formulas of compatible films. Ideal for precoated metals, laminates, carpets, glass...

Discover OXYGEN Recycled

OXYGEN Vegetal: minimum 30% of plant oil waste & residue via Mass Balance approach. The most versatile solution for all markets: aluminium, stainless steel, laminates...

Discover OXYGEN Vegetal

OXYGEN Lean: a reduction of 20% in the quantity of Low Density Polyethylene included in the film. The solution for aluminium composite panels and laser cutting.

Discover OXYGEN Lean

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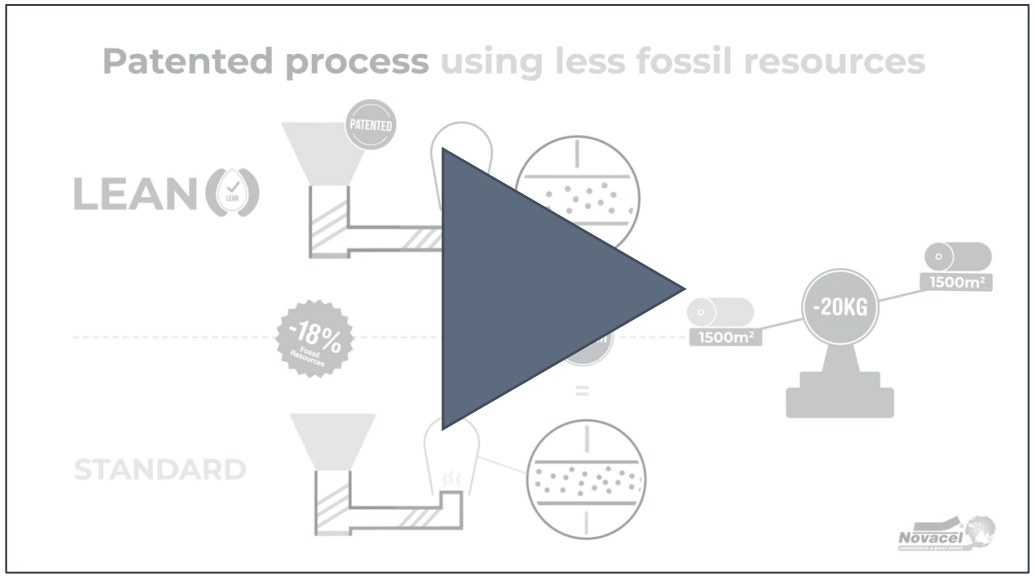
And Youtube

Lean process



OXYGEN – LEAN 3200 GAB by Novacel - YouTube

The Mass Balance approach

OXYGEN – VEGETAL – Produced thanks to the Mass Balance approach - YouTube

FAQ

Is bio-based film easily recycled?	Yes of course as for standard polyethylene film.
What are Novacel Vegetal films made of?	Novacel Oxygen Vegetal is made from vegetal oil waste and residue. Novacel choses not using of raw material that can be used for food.
Is our vegetal PE compostable?	Vegetal does not mean compostable. Novacel vegetal PE comes from vegetal oil waste and residue but is not compostable. However the film is still recyclable.
How to be sure that Novacel OXYGEN Vegetal film will be exactly as standard Novacel's products ?	Bio-based film is strictly polyethylene with the same physical, chemical and mechanical properties. The only difference comes from its origin: instead of coming from fossil oil, it comes from vegetal oil waste and residue.
How is CO2 footprint calculated ?	Life Cycle Inventories (LCI), based on the NF EN15 804 standard and calculated by a third party, assess Novacel films' CARBON FOOTPRINT from "cradle to gate".
What kind of recycled content does Novacel use ?	Novacel choses to work with PCR Post Consurmer Recycling PE..
What is a compostable film?	A compostable film is based on renewable materials (partially or 100%). A compostable protective film means that the film will degrade in specific conditions to return to the ground. These conditions are as follows: - industrial composter (as opposed to individual composter) - temperature (60 ° C) - humidity - action of micro-organisms. In these particular conditions, the degradation can take up to 6 months.

Glossary

Bio-based	Material or product derived from biological or renewable resources.
Fossil	Every resource synthetized from fossil fuel, especially oil/gas/coal, but also sulphates. Usually, by using the word fossil, we exclude fossil minerals like Calcium Carbonate.
Greenhouse gas	All gases, especially carbon dioxide, preventing heat from the earth escaping into space, causing the greenhouse effect.
Compostable Plastics	Compostable Plastics are a new generation of plastics which are biodegradable through composting. They are derived generally from renewable raw materials like starch (e.g. corn, potato, tapioca etc)
Mass Balance approach	Universal principle : % of raw materials replaced by responsible raw materials in the production at the early beginning of the manufacturing process. Example - Food (Cocoa : replacement of a part of classic cocoa by cocoa from a farmer alliance) - Energy (“Green Energy” replacement of part of standard energy by wind power) - Plastics (Polyethylene : replacement of a part of fossil oil by vegetal oil waste and residue)
Different type of recycled sourcing	- POST-INDUSTRIAL RECYCLED MATERIAL (PIR): Post-industrial material in use, i.e. material that is at least partly made from post-industrial recyclable materials. - POST CONSUMER RECYCLED MATERIAL (PCR): Post-consumer material in use: Material from end users that can no longer be used for its intended purpose, consisting of materials from "the yellow bag", waste paper, foil packaging, etc. from households. End consumers are (private) households and commercial and industrial facilities, - RE-USE / REGRINDING MATERIAL: Material made by/with reuse of waste from own production.

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Thank You

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